

AMENDMENTS TO THE CLAIMS

Listing of Claims

A listing of the entire set of pending claims is submitted herewith per 37 CFR 1.121. This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (Cancelled)
2. (Currently amended) ~~The method of claim 1~~ A method of communicating between an external control system and an electronic ballast, the method comprising:
receiving an external signal from the external control system;
generating an outboard signal in response to the external signal;
transmitting the outboard signal across a transformer to generate an inboard signal;
generating an internal signal in response to the inboard signal; and
utilizing the internal signal in a microprocessor, wherein the generating an outboard signal in response to the external signal comprises shorting across a secondary winding of the transformer.
3. (Currently amended) ~~The method of claim 1~~ A method of communicating between an external control system and an electronic ballast, the method comprising:
receiving an external signal from the external control system;
generating an outboard signal in response to the external signal;
transmitting the outboard signal across a transformer to generate an inboard signal;
generating an internal signal in response to the inboard signal; and
utilizing the internal signal in a microprocessor, wherein the generating an internal signal in response to the inboard signal comprises:
monitoring the inboard signal on a primary winding of the transformer; and
squaring up the inboard signal.
4. (Currently amended) ~~The method of claim 1~~ A method of communicating between an external control system and an electronic ballast, the method comprising:
receiving an external signal from the external control system;
generating an outboard signal in response to the external signal;

transmitting the outboard signal across a transformer to generate an inboard signal;
generating an internal signal in response to the inboard signal; and
utilizing the internal signal in a microprocessor, further comprising:
receiving a second internal signal from the microprocessor [[420]];
generating a second inboard signal in response to the second internal signal [[422]];
transmitting the second inboard signal across the transformer to generate a second outboard
signal [[424]];
generating a second external signal in response to the second outboard signal [[426]]; and
transmitting the second external signal to the external control system [[428]].

5. (Original) The method of claim 4 wherein the second internal signal has a higher duty cycle and a lower duty cycle, and the generating a second inboard signal in response to the second internal signal comprises toggling the second internal signal between the higher duty cycle and the lower duty cycle at a primary winding of the transformer.

6. (Original) The method of claim 5 wherein the second outboard signal has a higher voltage corresponding to the higher duty cycle and a lower voltage corresponding to the lower duty cycle.

7. (Original) The method of claim 6 wherein the generating a second external signal in response to the second outboard signal comprises shorting across a connection to the external control system in response to the higher voltage.

8-9. (Cancelled)

10. (Currently amended) ~~The system of claim 8~~ A system communicating between an external control system and an electronic ballast, the system comprising:

means for receiving an external signal from the external control system;
means for generating an outboard signal in response to the external signal;
means for transmitting the outboard signal across a transformer to generate an inboard signal;
means for generating an internal signal in response to the inboard signal; and
means for utilizing the internal signal in a microprocessor,

wherein the means for generating an outboard signal in response to the external signal comprises means for shorting across a secondary winding of the transformer, and

wherein the means for generating an internal signal in response to the inboard signal comprises:

means for monitoring the inboard signal on a primary winding of the transformer; and

means for squaring up the inboard signal.

11. (Currently amended) ~~The system of claim 8 further comprising:~~ A system communicating between an external control system and an electronic ballast, the system comprising:

means for receiving an external signal from the external control system;

means for generating an outboard signal in response to the external signal;

means for transmitting the outboard signal across a transformer to generate an inboard signal;

means for generating an internal signal in response to the inboard signal;

means for utilizing the internal signal in a microprocessor;

means for receiving a second internal signal from the microprocessor;

means for generating a second inboard signal in response to the second internal signal;

means for transmitting the second inboard signal across the transformer to generate a second outboard signal;

means for generating a second external signal in response to the second outboard signal; and

means for transmitting the second external signal to the external control system.

12. (Original) The system of claim 11 wherein the second internal signal has a higher duty cycle and a lower duty cycle, and the means for generating a second inboard signal in response to the second internal signal comprises means for toggling the second internal signal between the higher duty cycle and the lower duty cycle at a primary winding of the transformer.

13. (Original) The system of claim 12 wherein the second outboard signal has a higher voltage corresponding to the higher duty cycle and a lower voltage corresponding to the lower duty cycle.

14. (Original) The system of claim 13 wherein the means for generating a second external signal in response to the second outboard signal comprises means for shorting across a connection to the external control system in response to the higher voltage.

15. (Cancelled)

16. (Currently amended) ~~The circuit of claim 15~~ An electronic ballast with transformer interface communicating between an external control system and the electronic ballast, the ballast comprising:
an outboard circuit operably connected to and communicating with the external control system by an external signal;
a transformer operably connected to and communicating with the outboard circuit by an outboard signal; and
an inboard circuit connected to the transformer, the inboard circuit communicating with the transformer by an inboard signal, and communicating with a microprocessor by an internal signal,
wherein:

the transformer [[162]] comprises a primary winding and a secondary winding;
the inboard signal [[168]] has a lower duty cycle and a higher duty cycle;
the lower duty cycle on the primary winding generates a lower voltage for the outboard signal 166 on the secondary winding; and
the higher duty cycle on the primary winding generates a higher voltage for the outboard signal [[166]] on the secondary winding.

17. (Currently amended) The circuit of claim [[15]]16, wherein the external signal [[140]] follows the Digital Addressable Lighting Interface (DALI) protocol.

18. (Currently amended) ~~The circuit of claim 15~~ An electronic ballast with transformer interface communicating between an external control system and the electronic ballast, the ballast comprising:
an outboard circuit operably connected to and communicating with the external control system by an external signal;
a transformer operably connected to and communicating with the outboard circuit by an outboard signal; and
an inboard circuit connected to the transformer, the inboard circuit communicating with the transformer by an inboard signal, and communicating with a microprocessor by an internal signal,
wherein the outboard circuit [[160]] comprises:

a send circuit [[330]] providing the external signal [[140]] to the external control system; and
a receive circuit [[332]] receiving the external signal [[140]] from the external control system.

19. (Currently amended) The circuit of claim 18, wherein the outboard signal [[166]] has a first state and a second state, and the send circuit [[330]] is responsive to the outboard signal [[166]] to short a connection to the external control system when the outboard signal [[166]] is in the first state.

20. (Currently amended) The circuit of claim 18, wherein external signal [[140]] has a first state and a second state, and the receive circuit [[332]] is responsive to the external signal [[140]] to short a secondary winding of the transformer [[162]] when the external signal [[140]] is in the first state.

21. (Currently amended) The circuit of claim 18, wherein the outboard circuit [[160]] further comprises:

a bridge [[D13]] operably connected to communicate the external signal [[140]] with the send circuit [[330]]; and

a rectifier/filter [[334]] operably connected to communicate the outboard signal [[166]] with the receive circuit [[332]].

22. (Currently amended) ~~The circuit of claim 15~~ An electronic ballast with transformer interface communicating between an external control system and the electronic ballast, the ballast comprising:

an outboard circuit operably connected to and communicating with the external control system by an external signal;

a transformer operably connected to and communicating with the outboard circuit by an outboard signal; and

an inboard circuit connected to the transformer, the inboard circuit communicating with the transformer by an inboard signal, and communicating with a microprocessor by an internal signal,

wherein the inboard circuit [[164]] comprises:

a comparator [[336]] providing the internal signal [[150]] to the microprocessor [[128]];

and

an outgoing switch [[338]] receiving the internal signal [[150]] from the microprocessor [[128]].